INTRODUCTION

The UCM-97 GPRS Communicator is a single component, complete and compact modem device that allows you to add “Internet ready” wireless communication to your application. Housed in a robust aluminium enclosure the UCM-97 is designed for use in industrial environments.

The UCM-97 has integrated inteliggence which take care of all the GPRS login options for you. It works directly like a stand-alone unit and do the hole GPRS login procedure automaticly. All you has to provide is a SIM card with an enabled GPRS account and enter the specific AccessPoint Name (APN). When connected your UCM-97 is ready as a wireless network connection transparent to the physical Ethernet interface.

By using the GPRS Communicator any serial device can be directly connected to the IP world via the GPRS network. An internal Internet gateway converts your serial data into IP frames offering an easy configurable communication channel without requirements of special knowledge of General Packet Radio Services (GPRS) or PPP protocol handling.

Two communication ports, one serial RS232 or RS485 and one Ethernet, are provided with the GPRS Communicator. These can be used to collect data from the equipment being monitored or simply as a transparent gateway.

The UCM-97 GPRS Communicator includes a complete Web-Server for configuration, maintenance and customised purposes. From a standard Web Browser such as MS Internet Explorer you configure the different communication parameters, uploads new facilities or even browses your own dynamic Web-pages stored in the module. The full networking functionality makes it possible to have as much as 10 clients concurrently browsing the same module.

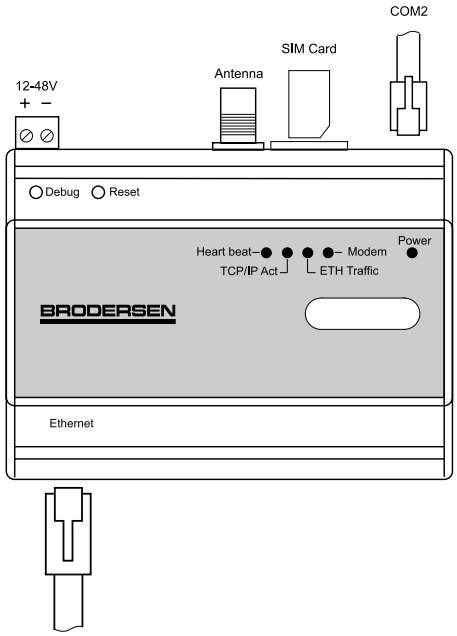
Features
The UCM-97 GPRS Communicator in the basic version offers:

- GPRS class 10 and Tri band 900/1800/1900 MHz communication facilities
- Extended watchdog functions for both modem and controller to provide maximum GPRS connection uptime.
- Automatic login to predifend Server function which enable connection in GPRS applications with dynamic assigned IP addresses (ReverseGateway).
- Built-in Web-Server used for configuration, maintenance and open for customisation of your own web pages
- Multi-networking protocol support; UDP, PPP, TCP, HTTP, FTP, SMTP, Telnet, MIME
- Seriel to TCP/IP protocol converter options; ModbusRTU to ModbusTCP.
- Interfaces: Ethernet 10BASE-T and RS232 V24 or RS485
- 12-48VDC power supply input
- Industrial mounting on 35 mm DIN rail

Additional factory fit options are available for other applications:

- Built-in AVR 8-bit application controller (ATMEGA type) with serial RS232 interface to handle application specific control parameters or communication driver implementation.
- Email and SMS support
- I/O expansion bus for connecting I/O modules directly to the GPRS Modem / Communicator.
- Unit with integrated I/O for alarms etc.

UCM-97 Communicator



Applications

The UCM-97 Communicator is highly versatile, and as such can be used in many modern communication applications for:

- Wireless networking of industrial HW using Internet technology
- Wireless communication to remote sites using VPN
- Wireless communication to a remote Ethernet network (Router facilities)
- Various Wireless Client-Server networking solutions

Key applications includes:

- Replacement of Leased Line technology
- Remote monitoring
- Advanced metering applications
- Traffic light control
- Rail crossing Monitoring
- Dynamic signs and information displays

TECHNICAL DESCRIPTION

The UCM-97 GPRS Communicator is ready to integrate with existing applications. The UCM-97 has a standard serial RS232 port that can be configured as a tunnel, enabling transparent serial communication via GPRS, PPP and TCP/IP at a maximum speed according to GPRS class 10. Alternatively the serial RS232 port can be used by an application programme to gain access to equipment, if a driver is written for the specific communication protocol.
Optionally the UCM-97 GPRS Communicator can be delivered with an 8-Bit AVR application controller. The purpose of this additional controller is to give users a very flexible application platform programmed by you or by us. Using a Browser as interface you are free to programme the AVR controller. Also users will have direct Telnet access to the application controller enabling easy debugging or data manipulation using Java applets.

TECHNICAL DATA

GPRS

GPRS Class 10
Coding schemes: CS1 to CS4
Compliant with SMG31bis

INTERFACES

Network Interface:
Ethernet: RJ45 10BASE-T

Serial interface COM2:

Signal level:	RS232C/v.24 or RS485.
Connector:	RJ11 6 pole.
Speed:	max. 115kbps
Protocol:	User defined

WEB SERVER

Memory:
1 Mb EDO RAM
2 Mb Flash

Real time clock:
Real Time Clock with battery backup option

Protocols:

Protocols supported:	ARP/RARP, PPP, UDP, TCP, DHCP, HTTP, FTP, SMTP, Telnet, DNS, MIME, SMP

Software:
OnBoard script language for data acquisition and creation of dynamic web-pages.

Optional separate Controller for applications:
Atmel AVR controller (Atmega 163)

Serial interface COM3 (optional):

Signal level:	RS232C/v.24.
Connector:	RJ11 6 pole.
Speed:	max. 115kbps
Protocol:	User defined

POWER SUPPLY

Supply Voltage:
Nominal 12-48VDC (10-60VDC)

Power consumption:
Max. 3W

Isolation

Power supply to electronics:	500V

Indicators (LEDS):
Power (green): Indicating power ON

Modem (red):	On = modem on and searching for net work. Flashing = modem connected to network
ETH Traffic (yellow):	Indication of network activity detected on the network interface.
TCP/IP act. (red):	Indication of network packets sent or received from the network (including broadcast packets).
Heart beat (green):	Indication of server-loop activity. Infrequent blinks indicates ”idle state” and frequent blinks indicates high system activity. The watchdog ”heartbeat” is super-imposed upon the server ”heart beat” flashing on the LED. The watchdog heartbeat is approximately 1/5 Hz.

GENERAL

Ambient temperature: 0 - +55°C.

EMC: EN 50081-1/EN50082-1.

Protection: IP20.

Mounting: 35 mm DIN-rail, EN50022.

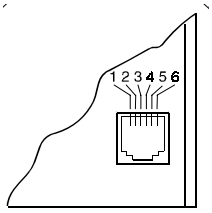
Power supply terminals: Max. 1.5 mm^2 wire.

Housing: Anodized aluminium with plastic ends. According to DIN 43880.

Dimensions: HxWxD: 80(+connectors)x108x62 mm.

Additional services
We would be pleased to develop application specific GPRS Module solutions. We can develop the necessary software to meet specific needs, e.g. homepage design. Hardware modification or enhancement is also possible if required.

Layout on serial interface / RS232/485



RS232 Hardware/serial interface
The serial port when used for RS232 is based on a 6 pole RJ11 connector. See the connection below

The RS232 port provide the following signals:

Pin 1	SG	Signal Ground	Electronic GND
Pin 2	RTS	Request To Send	Output
Pin 3	RX	Receive data	Input
Pin 4	TX	Transmit data	Output
Pin 5	CTS	Clear to send	Input
Pin 6		Shield	Module housing

RS485 Hardware/serial interface
The serial port when used for RS485 is based on a 6 pole RJ11 connector. See the connections below:

The RS485 port provide the following signals:

Pin 1	SG (Signal Ground)
Pin 2	Data +
Pin 3	Data -
Pin 4	RTS +
Pin 5	RTS -
Pin 6	Shield / Module housing